

### FEATURES :

- LOW INTERMODULATION DISTORTION  
IM<sub>3</sub> = -45 dBc at P<sub>o</sub> = 35.5 dBm,  
Single Carrier Level
- HIGH GAIN  
G<sub>1dB</sub> = 9.0 dB at 5.9 GHz to 6.4 GHz
- HIGH POWER  
P<sub>1dB</sub> = 46.5 dBm at 5.9 GHz to 6.4 GHz
- BROAD BAND INTERNALLY MATCHED
- HERMETICALLY SEALED PACKAGE

### RF PERFORMANCE SPECIFICATIONS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	P <sub>1dB</sub>	V <sub>DS</sub> = 10 V f = 5.9~6.4 GHz	dBm	46.0	46.5	-
Power Gain at 1 dB Compression Point	G <sub>1dB</sub>		dB	8.0	9.0	-
Drain Current	I <sub>DS</sub>		A	-	9.6	10.8
Gain Flatness	ΔG		dB	-	-	±0.8
Power Added Efficiency	η <sub>add</sub>		%	-	41	-
3rd Order Intermodulation Distortion	IM <sub>3</sub>	Note 1	dBc	-42	-45	-
Channel-Temperature Rise	ΔT <sub>ch</sub>	V <sub>DS</sub> × I <sub>DS</sub> × R <sub>th</sub> (c-c)	°C	-	-	100

### ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	V <sub>DS</sub> = 3 V I <sub>DS</sub> = 11.0 A	mS	-	8000	-
Pinch-off Voltage	V <sub>GSoff</sub>	V <sub>DS</sub> = 3 V I <sub>DS</sub> = 170 mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 3 V V <sub>GS</sub> = 0 V	A	-	24	31
Gate-Source Breakdown Voltage	V <sub>GS0</sub>	I <sub>GS</sub> = -500 μA	V	-5	-	-
Thermal Resistance	R <sub>th</sub> (c-c)	Channel to Case	°C/W	-	0.8	1.2

Note 1 : 2 tone Test Pout = 35.5 dBm Single Carrier Level.

Recommended gate resistace (R<sub>g</sub>) : R<sub>g</sub>=R<sub>g1</sub>(10 Ω)+R<sub>g2</sub>(18 Ω)=28 Ω (MAX.)

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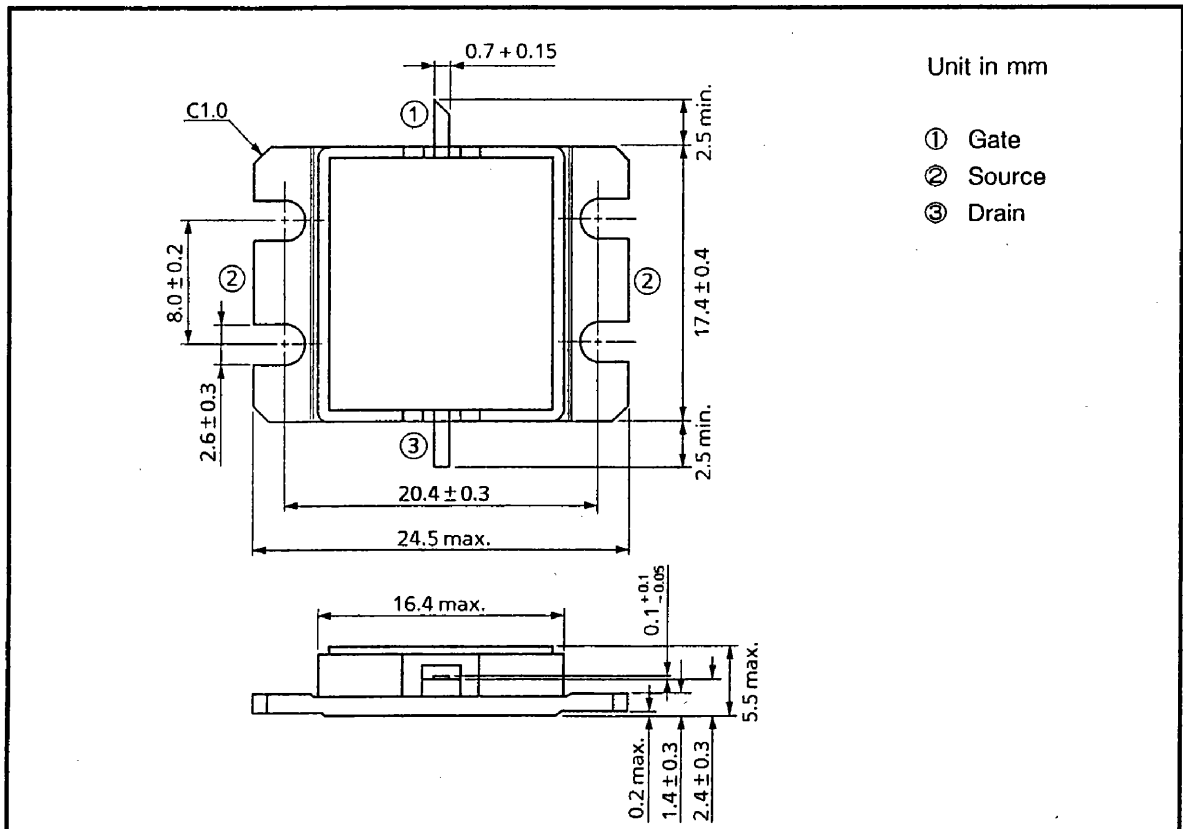


# TIM5964-45SL

## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V <sub>DS</sub>	V	15
Gate-Source Voltage	V <sub>GS</sub>	V	-5
Drain Current	I <sub>DS</sub>	A	31
Total Power Dissipation (T <sub>C</sub> = 25°C)	P <sub>T</sub>	W	125
Channel Temperature	T <sub>ch</sub>	°C	175
Storage Temperature	T <sub>stg</sub>	°C	-65~175

## PACKAGE OUTLINE (2-16G1B)

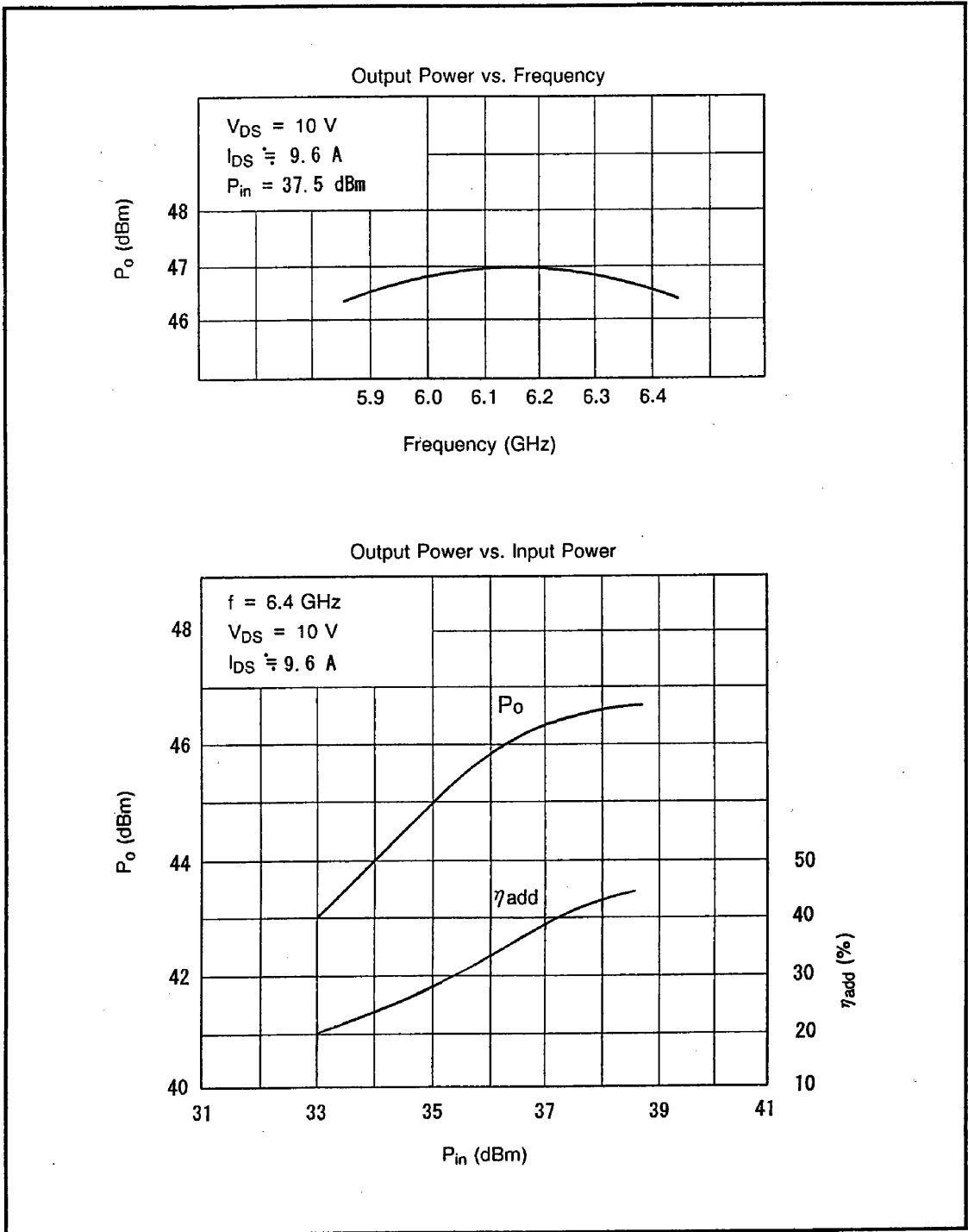


### HANDLING PRECAUTIONS FOR PACKAGED TYPE

Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

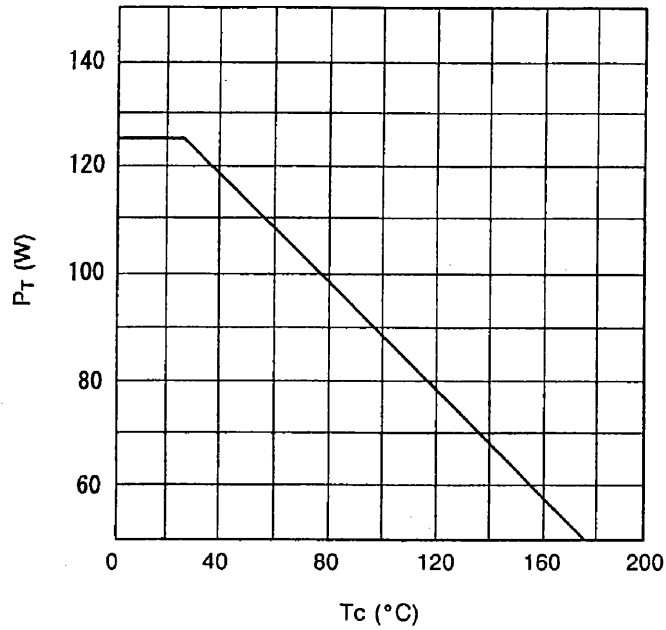
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## RF PERFORMANCES

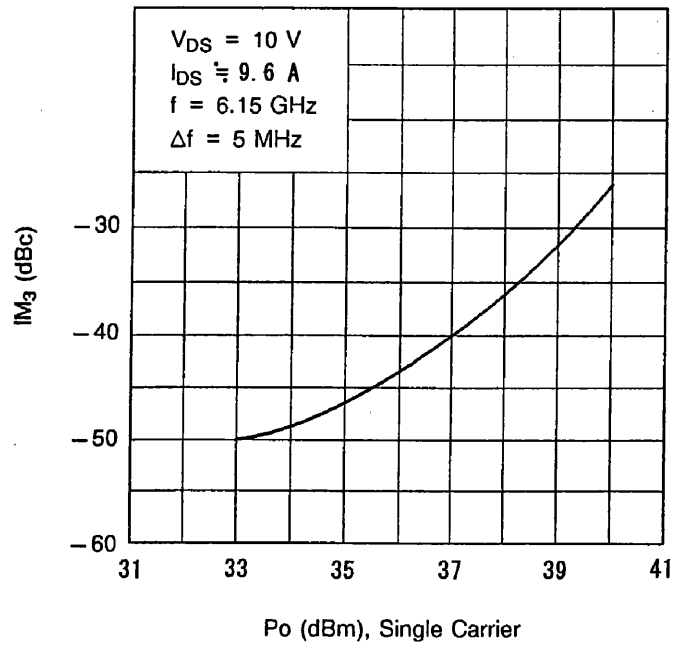


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## POWER DISSIPATION VS. CASE TEMPERATURE



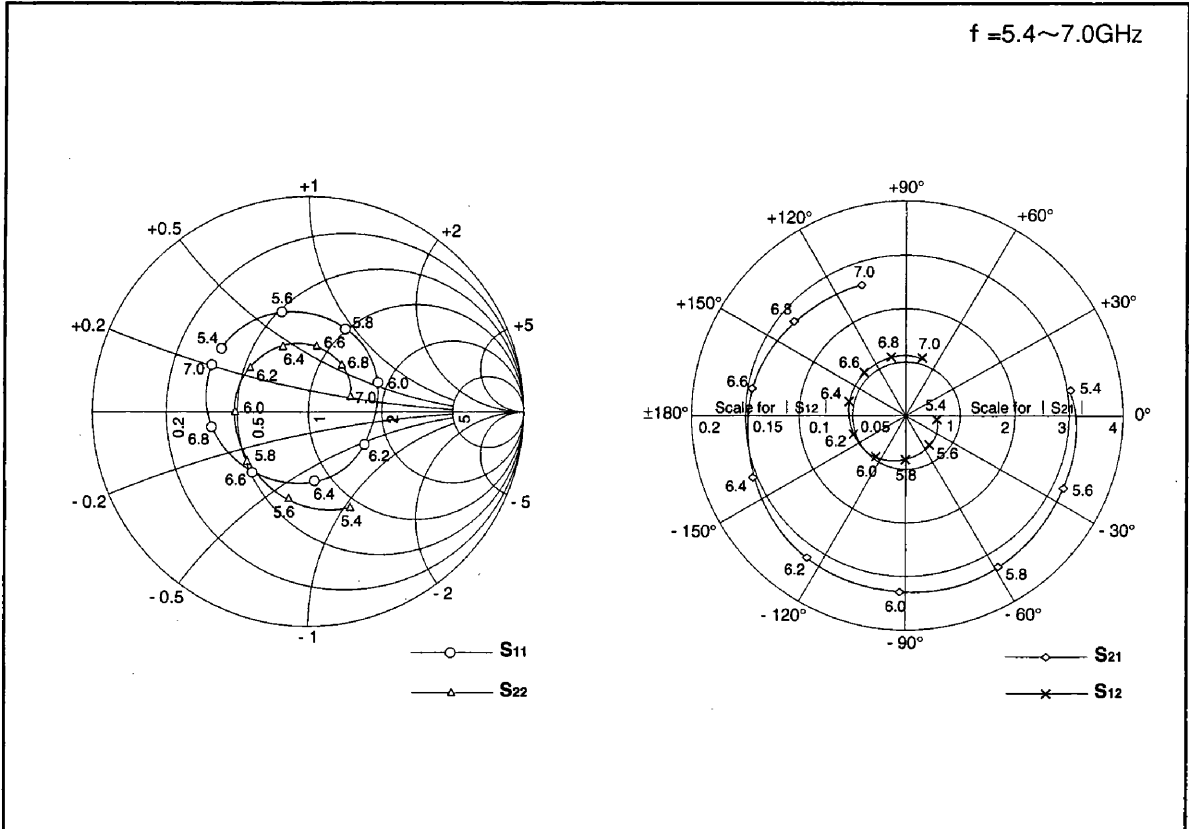
## IM<sub>3</sub> VS. OUTPUT POWER CHARACTERISTICS



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## TIM5964-45SL S-PARAMETERS (MAGN.and ANGLES)

$V_{DS} = 10V, I_{DS} = 9.6A$



FREQUENCY (GHz)	$S_{11}$		$S_{21}$		$S_{12}$		$S_{22}$	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.4	0.50	144	3.06	9	0.029	-7	0.48	-66
5.6	0.48	105	3.20	-25	0.035	-51	0.41	-103
5.8	0.42	66	3.28	-59	0.041	-90	0.36	-142
6.0	0.35	23	3.29	-92	0.047	-126	0.34	179
6.2	0.30	-30	3.22	-125	0.052	-161	0.34	142
6.4	0.32	-85	3.08	-158	0.055	166	0.33	111
6.6	0.38	-133	2.91	170	0.056	134	0.31	83
6.8	0.45	-171	2.74	140	0.056	104	0.27	55
7.0	0.50	154	2.58	109	0.056	74	0.21	22